

## DESTINATIONS - RATIOS and RATES with GOOGLE MAPS

NAMES: \_\_\_\_\_

**INSTRUCTIONS:** Work in partners with your iPad and calculator. Take turns searching, recording, and calculating.

1. Open “**Maps**”. Find destinations using “**Search**” and “**Directions**” (top left of screen).
2. Enter locations at top right of screen (“**Start**” and “**End**” for directions). Press “**Search**”. Compare routes.  
*Example:*     **Start** = SURREY BC 72 Ave & King George     **End** = SURREY BC 88 Ave & King George



3. Record DISTANCES and TIMES to walk, bus, or drive the distance. Compare distance for routes.  
*Example:*     Walk = 3.3 km in about 39 min     Bus =     Drive =
4. Compare the TIMES to go the same distance if you walk, bus or drive. Write this as a RATIO. Change **hours** to **minutes**.  
*Example:*     Walk = 39 min     Bus = 10 min     Drive = 4 minutes     →     39 : 10 : 4
5. Calculate the SPEED (rate of km / min). WATCH if DISTANCE CHANGES (Walk vs Bus vs Drive).  
Walking Speed = 3.3 km / 39 min = 0.08546 km / min (rounded to 3 or 4 decimal places)
6. Compare the SPEED you calculate to Walk, Bus or Drive by calculating RATIOS, DECIMALS and FRACTIONS.  
*Example:*     Walk = 0.0846 km / min     Bus = 0.33 km / min     Drive = 0.825 km / min

$$\begin{aligned}\text{Drive : Bus} &= 0.825 : 0.33 = 0.825 / 0.33 = 2.5 = 2 \frac{1}{2} \\ \text{Drive : Walk} &= 0.825 : 0.0846 = 0.825 / 0.0846 = 9.75 \text{ (rounded)} = 9 \frac{3}{4} \\ \text{RATIO} &= \text{DIVISION} \quad \text{DECIMAL} \quad \text{FRACTION}\end{aligned}$$

7. Complete the chart for different “**Start**” and “**End**” points in the Surrey area or Lower Mainland.
8. COMPARE and COMMENT on times, speeds, ratios for different trips.  
What is the fastest WALKING speed? BUS speed? DRIVING speed?  
Which RATIOS are the largest? Smallest? Which speeds and ratios stay the most constant?
9. CHECK YOUR PARTNER’S WRITTEN WORK using a calculator.
10. Use other Math Apps and Math Games when done OR use BING MAPS (bing.com → maps) to compare data.

**COMPLETE THE CHART using GOOGLE MAPS and your CALCULATOR**

<b>“Start” and “End”</b>	<b>DISTANCE &amp; TIME (min)</b>	<b>TIME RATIO</b>	<b>SPEEDS</b> (km) ÷ (min) = (km/min)	<b>SPEED RATIO</b>	<b>SPEED RATIO as decimal = fraction</b>
<b>Trip #1</b> King George Skytrain Surrey  <b>TO</b> Canada Place Vancouver	<b>Walk</b> <hr/> <b>Bus</b> <hr/> <b>Drive</b>	<b>W : B : D</b>	<b>Walk</b>  <b>Bus</b>  <b>Drive</b>	<b>D : W</b>  <b>D : B</b>	
<b>Trip #2</b> Frank Hurt Secondary Surrey  <b>TO</b> SFU Surrey	<b>Walk</b> <hr/> <b>Bus</b> <hr/> <b>Drive</b>	<b>W : B : D</b>	<b>Walk</b>  <b>Bus</b>  <b>Drive</b>	<b>D : W</b>  <b>D : B</b>	
<b>Trip #3</b> Frank Hurt Secondary Surrey  <b>TO</b> Kwantlen Polytechnic University	<b>Walk</b> <hr/> <b>Bus</b> <hr/> <b>Drive</b>	<b>W : B : D</b>	<b>Walk</b>  <b>Bus</b>  <b>Drive</b>	<b>D : W</b>  <b>D : B</b>	
<b>Trip #4</b> Frank Hurt Secondary Surrey  <b>TO</b> SFU Burnaby	<b>Walk</b> <hr/> <b>Bus</b> <hr/> <b>Drive</b>	<b>W : B : D</b>	<b>Walk</b>  <b>Bus</b>  <b>Drive</b>	<b>D : W</b>  <b>D : B</b>	

**COMPARE and COMMENT** on times, speeds, ratios for different trips. Use your own paper if you run out of space.

Fastest WALKING speed =

Largest RATIO =

Fastest DRIVING speed =

Smallest RATIO =

Fastest BUS speed =

Which speeds and ratios stay the most constant?

**COMPLETE THE CHART using GOOGLE MAPS and your CALCULATOR**

<b>“Start” and “End”</b>	<b>DISTANCE &amp; TIME (min)</b>	<b>TIME RATIO</b>	<b>SPEEDS</b> (km) ÷ (min) = (km/min)	<b>SPEED RATIO</b>	<b>SPEED RATIO as decimal = fraction</b>
<b>Trip #5</b> Frank Hurt Secondary Surrey  <b>TO</b> Guildford Town Centre	<b>Walk</b> <hr/> <b>Bus</b> <hr/> <b>Drive</b>	<b>W : B : D</b>	<b>Walk</b>  <b>Bus</b>  <b>Drive</b>	<b>D : W</b>  <b>D : B</b>	
<b>Trip #6 (your choice)</b>  <b>TO</b>	<b>Walk</b> <hr/> <b>Bus</b> <hr/> <b>Drive</b>	<b>W : B : D</b>	<b>Walk</b>  <b>Bus</b>  <b>Drive</b>	<b>D : W</b>  <b>D : B</b>	
<b>Trip #7 (your choice)</b>  <b>TO</b>	<b>Walk</b> <hr/> <b>Bus</b> <hr/> <b>Drive</b>	<b>W : B : D</b>	<b>Walk</b>  <b>Bus</b>  <b>Drive</b>	<b>D : W</b>  <b>D : B</b>	
<b>Trip #8 (your choice)</b>  <b>TO</b>	<b>Walk</b> <hr/> <b>Bus</b> <hr/> <b>Drive</b>	<b>W : B : D</b>	<b>Walk</b>  <b>Bus</b>  <b>Drive</b>	<b>D : W</b>  <b>D : B</b>	

**COMPARE and COMMENT on times, speeds, ratios for different trips. Use your own paper if you run out of space.**

Fastest WALKING speed =

Largest RATIO =

Fastest DRIVING speed =

Smallest RATIO =

Fastest BUS speed =

Which speeds and ratios stay the most constant?